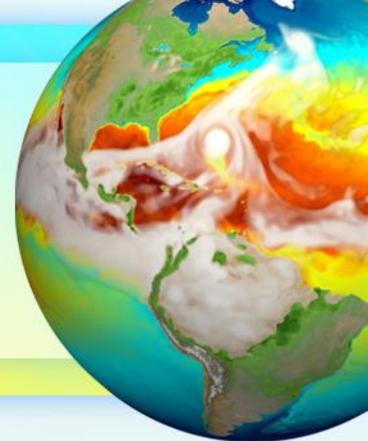


# Atmospheric Chemistry Connections Breakout

Philip Cameron-Smith



1. New solver (Rosenbrock-3). Joshua Fu and Rong-You Chien have tested on MAM sulfur chemistry.
  - Will read the CESM mechanism input file.
  - Hailong to provide MOZART version of E3SM.
  - Philip to provide standard run\_e3sm script.
  - Philip to provide super-fast configuration.

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## 2. Stratospheric Sulfate (Xiaohong, Hailong)

- Need OH, but not available in Linozv3 (O3, CH4, N2O, NOy), so explore options:
  - Full stratospheric chemistry.
  - Steady-state equilibrium diagnostic (add fixed conc of other species?)
  - Fixed OH.
  - Benchmark to WACCM.

## 3. Missing tropospheric chemicals for aerosols?

- NH3, OCS, Terpenes. Others?
- Philip has emailed Hailong and Xiaohong the list of UCI chemistry species. They will check for any other missing species.

# Atmospheric Chemistry Connections Breakout

## 4. Convective transport of tracers

- Wet scavenging default loss is poor. (Xiaohong)
- Test cases needed for convection developers (Vince Larson)

## 5. Semi-Lagrangian tracer transport (Andy Salinger)

- Working in E3SM -> significant speed up and reduced cost for extra tracers.
- 3D transport is now working -> longer timesteps.
- On master, but off by default.

## 6. BGC people in parallel breakout, so no discussion.